

Inferred Historic Gold Mining Approaches, Giyani Greenstone Belt, South Africa

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A review of abandoned small scale mines, situated on the Giyani (Sutherland) Greenstone belt, provided insight into the approach to mining during its heyday. Prospects were developed on what was considered the best target for gold mineralization, in the context of the time, namely quartz-veins. On the prospect areas, trenching is focused on quart-vein outcrops. The trenching phase could be suspended after a single trench or several trenches. It could be inferred that if good grade were obtained, a small mining operation would be set up. Mining would be focused on the vein, with development either taking the form of an open cast operation or further development underground on-reef. Treatment of the material would be done on site in most instances on the small scale project sites. This is deduced from the presence of ball-mill mounting blocks found on site and small residue dumps measuring only a couple of cubic meters in volume. It is also possible that sites with slightly more developed infrastructure, but with no dumps or infrastructure visible on site, that the material was transported for treatment at one of the larger established mines.

The relatively small residue dumps and poorly developed infrastructure on the sites would suggest that operations were suspended when insufficient recoveries were obtained. This may have been due to free gold being found in the upper oxidized zone, but at depth free gold decreased and sulphide-hosted refractory gold increased. The main reasons for the decline of the small scale mine in the Giyani greenstone is suggested as: 1) methods employed at that time were not suited to the recovery of the ore type. 2) The focus at that time was more on the development of the Witwatersrand gold fields, with the smaller greenstone areas lagging behind. 3) Water is in short supply.